

WHAT IS CLAIMED IS:

1. A polymer blend comprising:
- a) at least one acrylic or vinyl resin or both having at least one ionic or ionizable group; and
- 5 b) at least one thermoplastic fluoropolymer, wherein a) and b) are different.
2. The polymer blend of claim 1, wherein said at least one thermoplastic fluoropolymer is a copolymer.
3. The polymer blend of claim 1, wherein said fluoropolymer comprises poly(vinylidene fluoride).
- 10 4. The polymer blend of claim 1, wherein said fluoropolymer comprises a) poly(vinylidene fluoride) and b) hexafluoropropylene, tetrafluoroethylene, chlorotetrafluoroethylene, vinyl fluoride, or combinations thereof.
5. The polymer blend of claim 1, wherein said fluoropolymer comprises a) from about 30 weight % to about 100 weight % of a poly(vinylidene fluoride) and from 0 weight % to about 70 weight % of at least one poly(alkylene) containing at least one fluorine atom.
- 15 6. The polymer blend of claim 1, wherein said ionic or ionizable group is a sulfonated group or a phosphonated group or both.
7. The polymer blend of claim 1, wherein said at least one thermoplastic fluoropolymer is a core and said at least one acrylic resin having at least one ionic or ionizable group partially coats said core.
- 20 8. The polymer blend of claim 1, wherein said at least one acrylic or vinyl resin or both having at least one ionic or ionizable group is formed by polymerizing at least one acrylic or vinyl or both containing monomer, at least one co-polymerizable monomer, at least one monomer having at least one functional group, and at least one monomer having ionic or ionizable groups, wherein each
- 25 monomer is different from one another.
9. The polymer blend of claim 8, wherein said monomer having ionic or ionizable groups is a sulfonated or phosphonated monomer.
10. The polymer blend of claim 1, wherein said acrylic resin or vinyl resin is fluorinated.
11. The polymer blend of claim 1, wherein said acrylic resin or vinyl resin is a copolymer.
- 30 12. A composition comprising the polymer product of blending:
- a) at least one polymer comprising acrylic units, vinyl units or both, and at least one ionic or ionizable group; and
- b) at least one thermoplastic fluoropolymer, wherein a) and b) are different.
13. The composition of claim 12, wherein said acrylic units or vinyl units are fluorinated.

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14. The composition of claim 12, wherein said at least one polymer is a copolymer.
15. A polymeric ion membrane comprising the polymer blend of claim 1.
16. A membrane electrode assembly comprising the polymeric ion membrane of claim 15.
- 5 17. A fuel cell comprising the membrane electrode assembly of claim 16.
18. A fuel cell comprising anode and cathode compartments separated by a polymeric ionic exchange membrane, wherein said membrane comprises the polymer blend of claim 1.
19. The fuel cell of claim 18, wherein said membrane further comprises at least one filler.
20. The fuel cell of claim 18, further comprising at least one porous support layer which
10 is embedded in said membrane.
21. The fuel cell of claim 18, wherein said fuel cell operates with a liquid hydrocarbon fuel.
22. The fuel cell of claim 18, wherein the fuel cell operates with a methanol fuel.
23. A battery comprising anode and cathode compartments separated by a polymeric
15 ionic exchange membrane, wherein said membrane comprises the polymer blend of claim 1.
24. A method of making the composition of claim 1 comprising:
a) conducting a seed emulsion polymerization of a) at least one polymerizable monomer comprising acrylic or vinyl units in a dispersion of at least one fluoropolymer capable of dispersing in a medium.
- 20 25. The method of claim 24, wherein said at least one fluoropolymer is a copolymer.
26. The method of claim 24, wherein said fluoropolymer comprises poly(vinylidene fluoride).
27. The method of claim 24, wherein said fluoropolymer comprises a) poly(vinylidene fluoride) and b) hexafluoropropylene, tetrafluoroethylene, chlorotetrafluoroethylene vinyl fluoride, or
25 combinations thereof.
28. The method of claim 24, wherein said fluoropolymer comprises a) from about 30 weight % to about 100 weight % of a poly(vinylidene fluoride) and from 0 weight % to about 70 weight % of at least one poly(alkylene) containing at least one fluorine atom.
29. The method of claim 24, wherein said ionic or ionizable group is a sulfonated group
30 or a phosphonated group or both.
30. A method of making the composition of claim 1 comprising blending:
a) at least one polymer comprising acrylic units, vinyl units, or both and at least one ionic or ionizable group; and
b) at least one thermoplastic fluoropolymer, wherein a) and b) are different.

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31. The method of claim 30, wherein said blending is accomplished by melt or extrusion blending or solvent blending.

32. The method of claim 30, wherein a) polymer is prepared by emulsion, bulk, or solution polymerization.

5 33. A membrane comprising the composition of claim 1.

34. A composition comprising the polymer product of polymerizing a) at least one polymerizable acrylic, or vinyl containing monomer, or both, and at least one monomer comprising at least one ionic or ionizable group, or both; b) in the presence of a dispersion of at least one fluoropolymer capable of dispersing in a medium.

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